provided by Research Papers in Econom

Economics Bulletin

Volume 29, Issue 2

The J-Curve at the industry level: evidence from U.S.-India trade

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Abstract

Previous studies that investigated the impact of real depreciation of the rupee on Indian trade balance used aggregate trade data and provided mixed results. One recent study disaggregated the trade data between India and the rest of the world and used bilateral trade data between India and her seven major trading partners. No significant relation was found between the real exchange rate and the bilateral trade balance between India and her major partner, the U.S. In this paper we disaggregate the trade data between India and the U.S. at industry level and use trade data from 38 industries to show that in most industries while real depreciation of the rupee has short-run effects, the short-run effects last into the long run in almost half of these industries.

Citation: Mohsen Bahmani-Oskooee and Rajarshi Mitra, (2009) "The J-Curve at the industry level: evidence from U.S.-India trade ", *Economics Bulletin*, Vol. 29 no.2 pp. 1520-1529.
Submitted: May 21 2009. **Published:** June 29, 2009.

1. Introduction

Since its introduction in 1973 by Magee (1973), the J-Curve phenomenon has received a great deal of attention from researchers. The phenomenon represents the pattern of movement of a country's trade balance after currency devaluation or depreciation. Due to adjustment lags and due to the fact that goods in transit are at old prices, the trade balance deteriorates first and improves later following a path that resembles the letter J, hence the J-Curve hypothesis. While almost all studies have been collected in one article and reviewed by Bahmani-Oskooee and Ratha (2004), the Indian trade balance has received special attention which has resulted in its own literature.

Bahmani-Oskooee (1985, 1989) was perhaps the first to introduce a method of testing the J-Curve phenomenon. The trade balance model that he introduced was applied to quarterly data to a few developing countries including India. The results revealed that real depreciation of the Indian rupee has neither short-run effect nor any long-run effect on Indian trade balance. However, when Himarios (1989) measured the trade balance in terms of the U.S. dollar, he showed that real depreciation of the rupee has favorable effect on Indian trade balance. In an attempt to resolve the conflicting findings, Bahmani-Oskooee and Malixi (1992) employed a unit-free measure of the trade balance and showed that real depreciation of the rupee did not improve the trade balance of India neither in the short run nor in the long run.

Recent studies relied upon cointegration and error-correction modeling techniques to determine whether they can identify any significant relation between real value of the rupee and the Indian trade balance. Rose (1990) considered the trade balance of 30 developing countries including India and showed that despite the use of data at two frequencies (i.e., annually and quarterly), there is no strong relation between the real exchange rate and the trade balance. Similar results were also found by Bahmani-Oskooee and Alse (1994) and Buluswar et al. (1996).[1]

One common feature of the studies reviewed above is that they all used aggregate trade data to estimate their models. Following Rose and Yellen (1989) who disaggregated the trade data at bilateral level and investigated the impact of real depreciation of the dollar on the bilateral trade balance between the U.S. and her seven major trading partners, Arora *et. al.* (2003) considered the bilateral trade balance of India with her seven major trading partners that included Australia, France, Germany, Italy, Japan, U.K. and U.S.A. Subscribing to a new definition of the J-Curve by Rose and Yellen (1989), i.e., short-run deterioration combined with long-run improvement, Arora *et. al.* (2003) were able to provide empirical support for the new definition in the trade balance between India and Australia, Germany, Italy and Japan. In the case of India-U.S. trade balance, while they report short-run significant effects, they found no long-run effect.

Is it possible that lack of any long-run relation between the real value of the rupee against the U.S. dollar and the bilateral trade balance between the two countries be due to aggregation

[1] Lack of cointegration between the real exchange rate and Indian trade balance is consistent with insignificant import and export price elasticities found for India by Bahmani-Oskooee (1986). Price elasticites that used to form the well-known Marshall-Lerner condition is an alternative but indirect method of assessing the impact of devaluation on the trade balance. If sum of price elsticities exceed unity, the Marshall-Lerner condition is said to be satisfied, implying the devaluation could improve the trade balance.

bias? To answer this question, we disaggregate the trade data between the two countries and consider 38 industries that trade between them. To this end, in Section II we introduce a trade balance model that conforms to industry level data as well as our methodology. Section III reports the results. A summary is provided in Section IV. Finally, source of the data and definition of variables appear in an appendix.[2]

2. The Model and Method

Following Ardalani and Bahmani-Oskooee (2007) who tested the J-Curve at the commodity level between U.S. and the rest of the world we adopt the following long-run specification:[3]

$$LnTB_{j,t} = \alpha + \beta LnY_{IN,t} + \lambda LnY_{US,t} + \delta LnRE_t + \varepsilon_t \qquad (1)$$

In model (1), TB_J is a unit-free measure of the trade balance for industry j which is defined as the ratio of industry j's exports over the same industry's imports. Y_{IN} (Y_{US}) is a measure of economic activity in India (U.S.) and *RE* is the real bilateral exchange rate between Indian rupee and the U.S. dollar. An estimate of β is expected to be negative mostly because an increase in Indian income is expected to increase her imports of commodity j. However, if increase in Indian income is due to an increase in the production of substitute goods for j, an estimate of β could be positive. (Bahmani-Oskooee 1986). By the same token, an estimate of λ could be also positive or negative. Finally, as the appendix shows, an increase in *RE* reflects a real depreciation of the rupee against the dollar and if real depreciation of the rupee is to improve the trade balance of industry j, an estimate of δ is expected to be positive.

Estimating parameters of (1) only yields the long-run coefficient estimates. However, since the J-Curve is a short-run concept we incorporate the short-run dynamics into (1) by expressing it in an error-correction format. We do this following the bounds-testing approach of Pesaran *et al.* (2001) as in equation (2) below:

$$\Delta LnTB_{J,t} = \alpha + \sum_{k=1}^{n1} \theta_k \Delta LnTB_{J,t-k} + \sum_{k=0}^{n2} \beta_k \Delta LnY_{IN,t-k} + \sum_{k=0}^{n3} \lambda_k \Delta LnY_{US,t-k} + \sum_{k=0}^{n4} \delta_k \Delta LnRE_{t-k} +$$

$$+ \theta LnTB_{t-1} + \beta LnY_{IN,t-1} + \lambda LnY_{US,t-1} + \delta LnRE_{t-1} + \mu_t \qquad (2)$$

Pesaran *et al.* (2001) propose applying the familiar F test to determine whether the lagged level variables (as a direct substitute for lagged error-correction term) are jointly significant. If they are jointly significant, they are said to be cointegrated. The F test, however, has new critical values that Pesaran *et al.* (2001) tabulate. By assuming all variables to be integrated of order one, they tabulate an upper bound critical value that depends on number of regressors in the long-run

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[2] Since the review by Bahmani-Oskooee and Ratha (2004), several studies have appeared in the literature that test the J-Curve using either aggregate or bilateral trade data. These are reviewed in Halicioglu (2007) and need no mention here..

[3] Note that since Ardalani and Bahmani-Oskooee (2007) applied their model to 66 industries that traded between U.S. and the rest of the world, the exchange rate was real effective rate. We include the real bilateral rate since industries that are included are those that they trade between U.S. and India. Thus, this is an extension and further disaggregation over and beyond Ardalani and Bahmani-Oskooee (2007).

model. Similarly, by assuming all variables to be stationary, they tabulate a lower bound critical value. For cointegration, the calculated F statistic should be grater than the upper bound critical value. They demonstrate that the new critical values could be used even if some variables are non-stationary and some are stationary. Indeed, they argue that there is no need for pre-unit root testing. Note that another advantage of specification (2) is that we simultaneously estimate and distinguish the short-run effects from the long-run effects. Concentrating on the variable of interest, i.e., the real exchange rate, its short-run effects are inferred by the estimates of δ_k's. Specifically, a negative value for δ_k at lower lags followed by positive values at higher lags will depict the J-Curve pattern. The long-run effects are inferred by the estimate of δ that is normalized on θ.[4]

3. Empirical Results

The error-correction model outlined by equation (2) is estimated for 38 industries that trade between India and the U.S. using annual data over the period 1962-2006. Following Bahmani-Oskooee and Gelan (2006) we use Akaike Information Criterion (AIC) to select the optimum lags and carry out the F test at optimum lags. The results for each industry are reported in two tables. While Table 1 reports the short-run and the long-run coefficient estimates, Table 2 reports diagnostic statistics that includes the F test as well as other statistics.

Tables 1 & 2 go here

Consider first the short-run coefficient estimates. For brevity we have only reported the short-run results for the real exchange rate so that we can infer the J-Curve pattern. There are 22 industries in which there is at least one lagged coefficient that is significant at the 10% level, indicating that real depreciation of the rupee has short-run effects on the trade balance of 22 industries. However, initial deterioration is followed by an improvement only in three industries, i.e., textile yarn and thread, tubes, and manufactures of metal, providing some support for the J-Curve hypothesis. If we subscribe to the new definition by Rose and Yellen (1987) and define the J-Curve as short-run deterioration combined by long-run improvement, then five additional industries could be added to the list. These are industries in which the real exchange rate carries a significant long-run positive coefficient. They are: vegetables; other crude minerals, soaps, Pearls, and jewellery. Thus, while such results were not confirmed by previous research using aggregate trade data, disaggregating trade data by commodity provides support for the J-Curve at least in eight industries. Note that the long-run results also reveal that there are six industries that will be hurt by devaluation in the long run. They are: crude animal materials, medicinal and pharmaceutical products, textile fabrics, tubes, manufactures of metal, and electric power machinery. Note that the income variables carry significant coefficients in most industries.

Of course, the long-run results would only be meaningful if the variables in the model are cointegrated. To validate cointegration among the variables of the trade balance model we shift to table 2 and diagnostics. Given the upper-bound critical value of 3.52 reported at the bottom of table 2 we gather that the calculated F statistic is greater than its critical value in 27 industries supporting cointegration. In the remaning cases, following Bahmani-Oskooee and Gelan ((2006) we rely upon an alternative test for cointegration. Using the long-run coefficient estimates from Table 1 we form

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[4] For other applications of this approach see Bahmani-Oskooee et al. (2005), Bahmani-Oskooee and Hegerty (2007), Narayan et al. (2007), Serletis and Gogas (2007), Tang (2007), Mohammadi et al. (2008), Wong and Tang (2008), De Vita and Kyaw (2008), and Payne (2008).

an error-correction term, *ECM*. We then replace the lagged level variables by ECM_{t-1} and estimate the error-correction model one more time after imposing the optimum lags on each first differenced variable. A significantly negative coefficient obtained for ECM_{t-1} will support the cointegration. As can be seen from Table 2 in almost all industries ECM_{t-1} carries a significantly negative coefficient. A negative and significant coefficient obtained for ECM_{t-1} also supports the notion that the adjustment among the variables of the trade balance model is toward equilibrium.

A few other diagnostics are reported in Table 2. First, the Lagrange Multiplier (LM) statistic for testing serial correlation in each optimal model is reported. It has a χ^2 distribution with one degree of freedom. Given the critical value of 3.84, it is clear that the residuals in almost all models are autocorrelation free. Second, Ramsey's RESET test for misspecification is also reported. This too has a χ^2 distribution with one degree of freedom. Again given the critical value of 3.84, it appears that most optimal models are correctly specified. Third, following Pesaran *et al*. (2001), we apply the CUSUM and CUSUMSQ tests for the residuals of each optimal model to determine the stability of the short-run as well as the long-run estimated coefficients. If an estimated model is stable, it is indicated by "S". An unstable model is identified by "U". Clearly majority of the estimated models are stable. Finally, the size of the adjusted R^2 indicates a good fit in most cases.

4. Conclusion and Summary

Since its theoretical introduction in 1973, the J-Curve hypothesis has received a great deal of attention. It outlines the short-run path that the trade balance follows after currency devaluation and on this regard, the trade balance of India is no exception. Researchers have tried to test the J-Curve phenomenon for India using different data set. Those who employed aggregate trade data, i.e., trade between India and rest of the world, were not successful in finding empirical support for the J-Curve. They were also unsuccessful in finding any long-run effect of real depreciation of the rupee on Indian trade balance. After criticizing those studies, one study disaggregated the data at bilateral level and estimated the trade balance model between India and her seven largest trading partner, i.e., Australia, France, Germany, Italy, Japan, U.K. and the U.S. While there was no specific short-run pattern in most cases, the favorable long-run effects of real depreciation of the rupee was realized in the cases of Australia, Germany, Italy and Japan but not in the results for her largest trading partner, the U.S.

In this paper we disaggregate the trade data between India and the U.S. further at industry level to identify those industries that respond favorably to real depreciation of the rupee and those that do not. Although we were able to find industry level data for many commodities, there were only 38 industries for which continues trade data over the period 1962-2006 were available on an annual basis. Thus, we used annual data and Pesaran *et al*.'s (2001) bounds-testing approach to cointegration and error correction modeling to test for the short-run effects of real depreciation of the rupee (the J-Curve) as well as its long-run effects on the trade balance of each of the 38 industries. While there were 22 industries responding significantly to the real value of the rupee in the short-run, only in eight industries did the J-Curve receive support.

Appendix
Data Definition and Sources

All data are annual over the period 1962-2006 and come form the following sources:

a. World Bank.

b. International Financial Statistics of the IMF.

Variables:

TB_j = measure of the trade balance for industry j defined as the ratio of India's industry j's exports over the same industry's imports. Each industries trade shares data come from source a.

Y_{IN} = Measure of India's real income. Index of industrial production is used for this variable, source b.

Y_{US} = Index of industrial production in U.S. source b.

RE = Real bilateral exchange rate between Indian rupee and the U.S. dollar defined as $(P_{US}* NE)/P_{IN}$ where P_{IN} is India's CPI (from source b), P_{US} is the U.S. CPI (from source b), and NE_j is the nominal bilateral exchange rate defined as number of rupee per dollar, again from source b. Thus, an increase in RE is a reflection of real depreciation of the Rupee.

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TABLE 1: Short-Run and Long-Run Coefficient Estimates								
Industry	**Short-Run Coefficient Estimates**				**Long-Run Coefficient Estimates**			
	Δ *Ln* RE_t	$\Delta LnRE_{t-1}$	$\Delta Ln\ RE_{t-2}$	$\Delta Ln\ RE_{t-3}$	Constant	*Ln* $Y_{U.S.}$	*Ln* $Y_{In.}$	*Ln* RE
Fruit,preserved and fruit preparati	- 0.82 (0.80)	- 1.11 (0.91)	- 3.44 (2.90)	- 1.68 (1.59)	- 34.10 (8.21)	21.10 (9.30)	- 12.05 (7.36)	- 0.88 (0.73)
Vegetables, roots & tubers, fresh o	- 6.35 (2.73)	- 7.17 (2.81)			13.99 (0.69)	- 19.89 (1.75)	3.47 (0.40)	16.30 (1.72)
Other crude minerals	1.64 (2.08)				- 11.52 (2.38)	4.30 (1.53)	- 3.15 (1.96)	1.91 (2.34)
Crude animal materials, nes	2.23 (1.53)	0.30 (0.16)	3.62 (2.41)		44.79 (5.56)	- 17.88 (3.96)	14.26 (4.49)	- 7.34 (3.59)
Crude vegetable materials,nes	- 0.68 (1.19)	- 2.35 (3.27)	- 3.48 (4.84)	- 0.79 (1.21)	3.78 (1.18)	3.50 (1.99)	- 3.83 (3.27)	0.62 (0.60)
Organic chemicals	1.16 (1.11)	- 3.65 (2.92)	- 3.87 (2.72)	- 1.92 (1.70)	- 24.90 (3.21)	9.45 (2.33)	- 5.05 (1.81)	1.86 (0.90)
Medicinal & pharmaceutical products	- 1.20 (1.29)				- 1.41 (0.43)	- 2.08 (1.09)	5.66 (4.42)	- 3.65 (5.45)
Essential oils, perfume and flavour	- 0.38 (0.38)	- 1.90 (1.87)			4.70 (0.74)	- 0.59 (0.17)	- 0.40 (0.19)	0.58 (0.43)
Soaps,cleansing & polishing prepara	1.70 (3.04)				11.15 (0.70)	- 14.76 (1.50)	5.44 (1.06)	8.70 (1.70)
Manuf. of leather or of artif. or rec	- 3.41 (2.40)				23.71 (2.10)	- 5.71 (0.88)	2.18 (0.59)	- 1.41 (0.64)
Articles of rubber,nes	0.92 (0.81)				- 40.31 (9.87)	18.18 (7.98)	- 9.39 (6.01)	0.83 (0.84)
Wood manufactures, nes	- 0.92 (0.74)				- 13.49 (2.00)	11.05 (2.92)	- 6.51 (2.74)	- 0.92 (0.74)
Articles of paper, pulp, paperboard	- 0.37 (0.50)				- 4.89 (0.38)	3.24 (0.44)	- 0.71 (0.16)	- 1.52 (0.56)
Textile yarn and thread	- 0.39 (0.24)	- 1.27 (0.63)	- 0.45 (0.26)	2.45 (1.65)	33.32 (1.60)	- 20.93 (1.67)	10.87 (1.48)	3.28 (0.93)
Text fabrics woven ex narrow, spec,	- 3.87 (5.00)				32.76 (7.76)	- 6.84 (2.87)	3.91 (2.57)	- 3.87 (5.00)
Tulle, lace, embroidery, ribbons, t	- 2.85 (3.10)				29.76 (4.08)	- 12.50 (3.00)	6.62 (2.65)	- 0.34 (0.21)
Special textile fabrics and related	- 1.29 (0.86)	- 5.23 (3.42)			- 14.23 (1.49)	5.87 (1.11)	- 0.96 (0.26)	- 1.29 (0.58)
Made-up articles,wholly or chiefly	0.60 (0.23)	- 5.13 (1.98)	- 3.67 (1.57)		15.96 (1.29)	- 5.89 (0.81)	3.71 (0.79)	1.68 (0.52)
Mineral manufactures, nes	0.22 (0.45)				19.96 (3.05)	- 10.96 (2.77)	6.73 (2.70)	0.49 (0.43)
Glassware	- 1.43 (1.14)				0.87 (0.06)	- 2.46 (0.30)	0.35 (0.08)	3.26 (1.12)
Pearls and precious and semi-precio	- 0.07 (0.10)	- 1.56 (2.13)			- 17.54 (4.40)	9.65 (4.41)	- 6.52 (4.38)	2.02 (2.09)
Tubes,pipes and fittings of iron or	- 1.10 (1.15)	1.87 (1.52)	3.06 (2.60)	3.61 (3.56)	- 12.12 (3.13)	5.34 (2.52)	0.74 (0.48)	- 3.32 (3.26)
Metal containers for storage and tr	- 1.76 (1.56)				- 27.76 (5.09)	12.37 (4.05)	- 5.12 (2.62)	- 1.57 (1.63)
Household equipment of base metals	1.06 (0.89)				4.99 (0.40)	- 2.13 (0.30)	0.49 (0.12)	2.11 (0.89)
Manufactures of metal, nes	- 1.00 (1.29)	1.16 (1.13)	2.57 (2.76)	1.49 (1.77)	- 32.58 (6.42)	18.26 (6.44)	- 7.99 (4.25)	- 3.10 (2.23)
Textile and leather machinery	- 0.38 (0.37)				- 15.46 (2.73)	3.93 (1.20)	- 0.65 (0.34)	- 0.39 (0.36)
Electric power machinery and switch	- 2.54 (3.12)				- 22.63 (4.35)	8.16 (2.83)	- 0.45 (0.26)	- 3.25 (3.36)
Sanitary,plumbing,heating & lightin	- 1.89 (1.83)				- 32.22 (8.45)	17.18 (8.01)	- 8.36 (6.03)	- 0.46 (0.61)
Furniture	0.05 (0.05)				1.95 (0.13)	- 3.09 (0.38)	3.96 (0.76)	0.13 (0.05)
Clothing except fur clothing	- 1.27 (1.34)				- 82.58 (6.50)	46.98 (6.42)	- 24.18 (5.22)	- 3.06 (1.34)
Scientific,medical,optical,meas./co	- 0.67 (1.09)				- 26.99 (6.60)	11.37 (4.94)	- 4.88 (3.61)	- 0.90 (1.19)
Developed cinematographic film	- 0.45 (0.24)	- 0.16 (0.08)	- 3.33 (1.88)		39.28 (1.32)	- 30.19 (1.69)	14.06 (1.31)	9.78 (1.19)
Musical instruments,sound recorders	0.42 (0.73)				2.88 (0.68)	- 2.83 (1.17)	1.58 (1.05)	0.56 (0.74)
Printed matter	- 0.13 (0.35)				4.41 (0.98)	- 5.01 (1.95)	4.39 (2.65)	- 0.31 (0.36)
Articles of artificial plastic mate	0.49 (0.53)				- 1.29 (0.09)	1.18 (0.14)	1.04 (0.22)	1.34 (0.49)
Perambulators,toys,games and sporti	- 3.29 (2.17)				17.18 (0.84)	- 10.45 (0.83)	2.59 (0.39)	5.21 (1.02)
Jewellery and gold/silver-smiths wa	- 0.85 (0.72)				0.98 (0.10)	- 2.95 (0.53)	- 1.35 (0.40)	5.83 (2.54)
Manufactured articles, nes	- 0.94 (0.92)	- 2.93 (2.51)	- 1.55 (1.48)		4.29 (0.46)	- 2.82 (0.51)	0.69 (0.20)	2.23 (0.82)

TABLE 2: Diagnostic Statistics

Industry	F	ECM_{t-1}	LM	$RESET$	$CUSUM$	$CUSUMSQ$	$Adj.\ R^2$
Fruit,preserved and fruit preparati	7.11	- 0.92 (4.42)	4.75	0.27	S	S	0.61
Vegetables, roots & tubers, fresh o	5.30	- 0.39 (2.28)	0.15	0.32	S	S	0.62
Other crude minerals	5.37	- 0.86 (4.70)	0.002	0.16	S	S	0.62
Crude animal materials, nes	10.00	- 0.69 (5.16)	0.63	0.41	S	S	0.64
Crude vegetable materials,nes	5.58	- 0.66 (3.70)	0.35	0.64	S	S	0.55
Organic chemicals	4.61	- 0.55 (3.08)	0.06	0.06	S	S	0.73
Medicinal & pharmaceutical products	6.70	- 0.92 (4.48)	1.21	1.18	S	S	0.40
Essential oils, perfume and flavour	3.76	- 0.59 (3.80)	0.01	8.46	S	S	0.24
Soaps,cleansing & polishing prepara	3.61	- 0.20 (2.26)	3.74	0.52	S	S	0.37
Manuf. of leather or of artif. or rec	4.49	- 0.49 (3.55)	0.54	1.68	S	S	0.36
Articles of rubber,nes	8.47	- 0.92 (6.15)	1.37	0.54	S	U	0.61
Wood manufactures, nes	9.04	- 1.06 (6.27)	2.39	1.44	S	S	0.58
Articles of paper, pulp, paperboard	1.04	- 0.24 (2.19)	0.003	0.05	S	S	0.06
Textile yarn and thread	3.47	- 0.42 (1.98)	0.25	0.08	S	S	0.52
Text fabrics woven ex narrow, spec,	14.43	- 1.04 (7.89)	0.71	3.51	S	U	0.69
Tulle, lace, embroidery, ribbons, t	2.88	- 0.46 (3.56)	2.95	4.99	S	S	0.36
Special textile fabrics and related	8.27	- 0.57 (4.84)	0.07	2.24	S	S	0.70
Made-up articles,wholly or chiefly	4.00	- 0.70 (2.87)	4.54	4.03	S	U	0.50
Mineral manufactures, nes	3.31	- 0.45 (3.02)	0.12	4.68	S	S	0.40
Glassware	4.18	- 0.37 (3.13)	0.04	5.85	S	S	0.31
Pearls and precious and semi-precio	5.42	- 0.70 (4.25)	0.09	0.19	S	S	0.42
Tubes,pipes and fittings of iron or	9.80	- 1.02 (6.59)	6.35	0.01	S	S	0.58
Metal containers for storage and tr	7.26	- 1.12 (5.29)	4.28	4.45	S	S	0.40
Household equipment of base metals	1.87	- 0.50 (2.84)	1.66	0.001	S	S	0.28
Manufactures of metal, nes	4.24	- 0.59 (4.63)	3.44	0.05	S	S	0.40
Textile and leather machinery	4.93	- 0.99 (4.45)	0.03	8.76	S	U	0.34
Electric power machinery and switch	8.05	- 0.78 (5.59)	0.84	3.37	S	U	0.43
Sanitary,plumbing,heating & lightin	8.16	- 0.91 (6.02)	2.18	5.27	S	U	0.58
Furniture	1.98	- 0.35 (2.74)	0.09	0.81	S	U	0.14
Clothing except fur clothing	3.99	- 0.42 (3.98)	0.21	0.34	S	U	0.37
Scientific,medical,optical,meas./co	6.29	- 0.75 (4.59)	0.42	0.14	S	S	0.42
Developed cinematographic film	2.07	- 0.24 (2.17)	0.02	5.50	S	S	0.21
Musical instruments,sound recorders	4.83	- 0.76 (4.53)	0.54	0.66	S	U	0.48
Printed matter	3.37	- 0.41 (3.10)	1.47	5.99	S	S	0.36
Articles of artificial plastic mate	2.56	- 0.37 (2.50)	1.90	0.69	S	S	0.50
Perambulators,toys,games and sporti	3.36	- 0.30 (2.61)	1.02	5.59	S	U	0.35
Jewellery and gold/silver-smiths wa	4.03	- 0.44 (3.62)	0.27	0.01	S	S	0.39
Manufactured articles, nes	3.00	- 0.41 (2.66)	1.08	0.12	S	S	0.47